Stormwater CONNECTIONS

Fall 2005

What's Inside...

CITY OF EUGENE STORMWATER MANAGEMENT PROGRAM

Stormwater Connections is published by the City of Eugene Public Works Department to enhance awareness of stormwater and related surface water management issues.

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When good cleaning activities go bad

It's no wonder that pressure washers have become increasingly popular cleaning tools. They're affordable, easy to use, handy and time saving. For tougher cleaning jobs like removing unwanted dirt, debris, paint, oil, or grease, high pressure and heat can help get the job done quickly. But, be aware. There's a potential problem.

What do you do with the waste you just finished removing? If your response is "hose ino the street or nearest storm drain," you've just put your finger on a growing water pollution problem.

What's the worry? Most outside areas drain to our stormwater system which consists of underwater stormwater lines or roadside ditches and open channels. Some people mistakenly think that runoff draining to these areas is treated before it empties into our waterways when, in fact, it is not treated.

Anyone using a pressure washer needs to understand that discharging anything other than rainwater into the storm drain system is prohibited. Pressure washing professionals are expected to use best management practices to keep pollutants from entering the storm drain system. When you or someone you hire tackles your next pressure washing project, make sure the job is done right.

- Start with dry cleanup methods first. Sweep, vacuum or blow into piles, then put in trash can. Don't hose off surfaces where they can enter the stormwater system.
- Use dry absorbents (cat litter) to clean up spills, oil and other fluids.
- Block the gutter or storm drain to filter runoff. Direct runoff to a lawn or landscaped area.
- Do not use soaps or household cleansers.
- For large surfaces, hire a street sweeper. Collect water and pump to the wastewater system. Check on disposal requirements at these numbers:
  In Eugene, call 682-8600
  In Springfield, call 726-3675
- For vehicles, cleaning is restricted to the exterior of the vehicle only and never allowed for engines, transmissions or undercarriages.

To order free fact sheets about pressure washing, vehicle washing, stormwater regulations in your area, or a list of pollution control suppliers, call the Stormwater Management Program at 682-2739. In Springfield, call 726-3675.

Above: A properly protected storm drain. Left: Pollutants flow directly to a local waterway from an unprotected storm drain. Below: Prompt clean up after pressure washing keeps pollutants from flowing into storm drain.

Property owners beware!

Polluted discharges from your property that enter into local storm systems in Eugene, Springfield, or Lane County are considered an illicit discharge violation. You could be subject to abatement costs, fines and/or penalties even if you hire someone else to do the job.

More Stormwater Connections

Plugged catch basins convert mild mannered parking lots and streets into watery obstacle courses

When performing regular maintenance activities, be sure not to hose, wash or dump anything into any part of the stormwater system and protect stormwater drains during construction activities.

It seems only natural that we think about cleaning rain gutters this time of year but what about those often forgotten storm drains in parking lots and other paved or gravel areas? Without regular maintenance and cleaning, they're likely to puddle up or flood and contribute pollutants to our local waterways. Catch basins (storm drains) connect to the public stormwater system and should get cleaned once every year or two, depending on the volume of on-site pollutants. Regular cleaning is essential to manage water quality in our local waterways and reduce flooding on private property and local streets. During the rainy season, plugged up catch basins easily convert parking lots, streets and driveways into watery obstacle courses.

The City of Eugene stormwater system includes stormwater drains known as "catch basins," street gutters, underground pipes, roadside ditches and open drainage channels. This integrated system carries run-off from public and private property directly into Eugene's open waterways such as Amazon Creek, the Willamette River and the Mill Race. Stormwater drains are designed to help prevent flooding on both public and private property as well as catch sediment, oils and other pollutants and prevent them from entering the natural environment. The City of Eugene Public Works Maintenance Division strives to clean stormwater catch basins on public right-of ways, drainage easements, and on City owned property annually.

On private property, it is the owner's responsibility to maintain stormwater drains and minimize any release of pollutants to the public stormwater system. Failure to maintain a private system is considered a violation of the City of Eugene's Stormwater Administrative Rule.

Flooding from plugged storm drains can make travel by car more challenging.

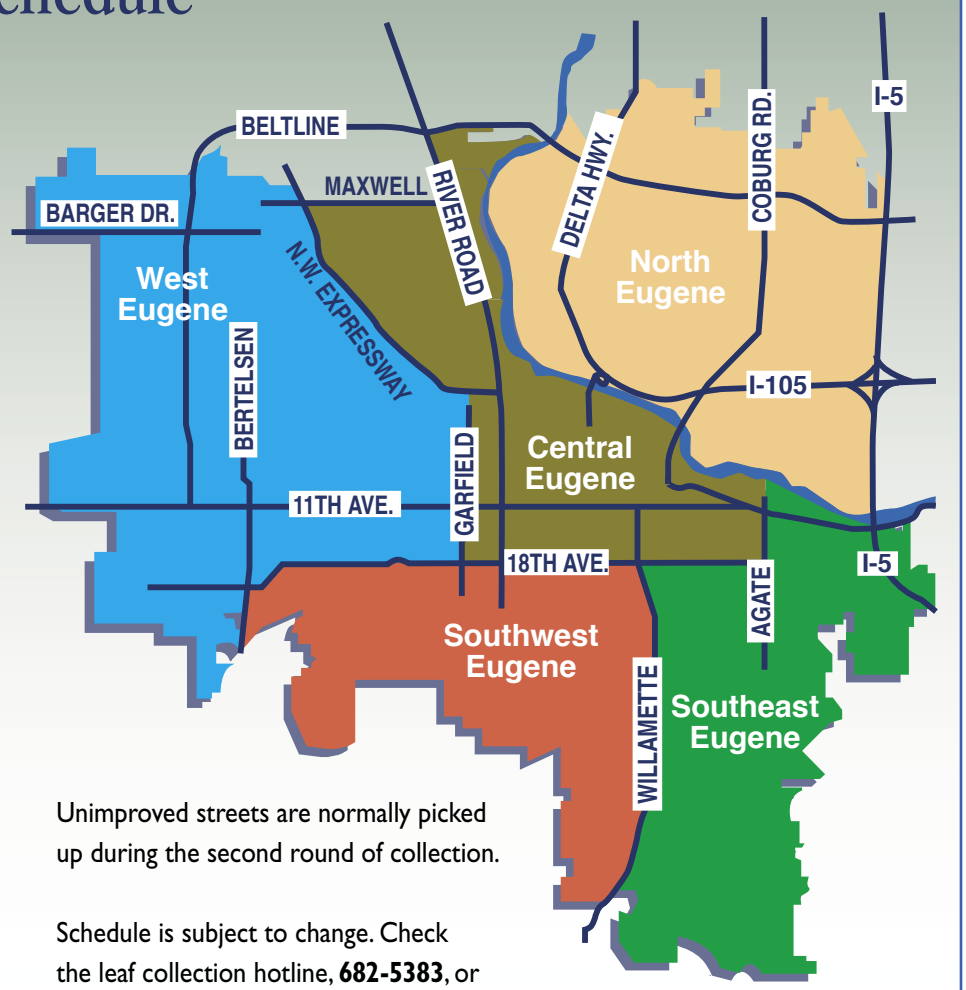
2005 leaf pick up schedule

Oct 31 – Nov 4	West Eugene
Nov 7 – Nov 11	North Eugene
Nov 14 – Nov 18	Central Eugene
Nov 21 – Dec 2	Southeast Eugene
Dec 5 – Dec 9	Southwest Eugene
Dec 12 – Dec 16	West Eugene
Dec 19 – Dec 30	Central Eugene
Jan 2 - Jan 6	North Eugene
Jan 9 – Jan 13	Southeast Eugene
Jan 16 – Jan 20	Southwest Eugene

Important things to remember if you're placing leaves in the street for pickup:

- Be sure leaves don't block sidewalks, bicycle lanes, or traffic lanes.
- Place leaves in a row at least a foot away from the curb so they don't block gutters and clog storm drains.
- Pile leaves at least 15 feet away from parked vehicles.
- Keep leaf piles free of sticks, pine needles and other yard debris. (Place organic non-leaf materials in your yard debris container.)

RAKE
RECYCLE
REUSE



Unimproved streets are normally picked up during the second round of collection.

Schedule is subject to change. Check the leaf collection hotline, **682-5383**, or **www.eugene-or.gov** for more up-to-date information.

More Stormwater Connections

Erosion: the big cover-up

Wet Weather Season is officially recognized in the city of Eugene from October 15th through April 30th. Homeowners and contractors who have building projects in progress need to be aware that minimum erosion control measures are required to keep each site in compliance:

- Cover all exposed soil and stockpile areas.
- Gravel construction entrances to prevent off-site tracking.
- Protect all water features, natural resource areas and storm water facilities and remove sediment, soil or debris in or adjacent to these areas immediately.

Areas with exposed soils can be a major source of stormwater pollution during the rainy season. When sediments enter waterways they block sunlight, limit plant growth, harm aquatic life and interfere with recreational use and enjoyment. Sediments remove oxygen from the water, making it harder for fish to breathe and feed, and may smother salmon and trout eggs. Sediment can also carry other pollutants and toxic substances into the waterways.

For more information on ways to "cover-up" contact the Erosion Prevention and Construction Site Management staff at (541) 682-8498.

Spraying exposed soil with hydroseed prevents erosion.

The results of hydroseeding are apparent in this photo. The exposed soil on the left shows obvious signs of erosion when compared with the properly seeded area on the right.

Long term plan for managing stormwater in River Road-Santa Clara

In response to the Clean Water Act of 1987, the City of Eugene adopted the Comprehensive Stormwater Management Plan (CSWMP, 1993), marking a shift in the city's approach to stormwater management. CSWMP provides the policy framework for a comprehensive approach to stormwater management through the integration of flood control and drainage services, water quality protection, and the protection of stormwater-related natural resources. An update of the city's stormwater master plan was then needed to bring it into compliance with new city policy. The previous stormwater master plan (Otak, 1990) addressed drainage and flood control only.

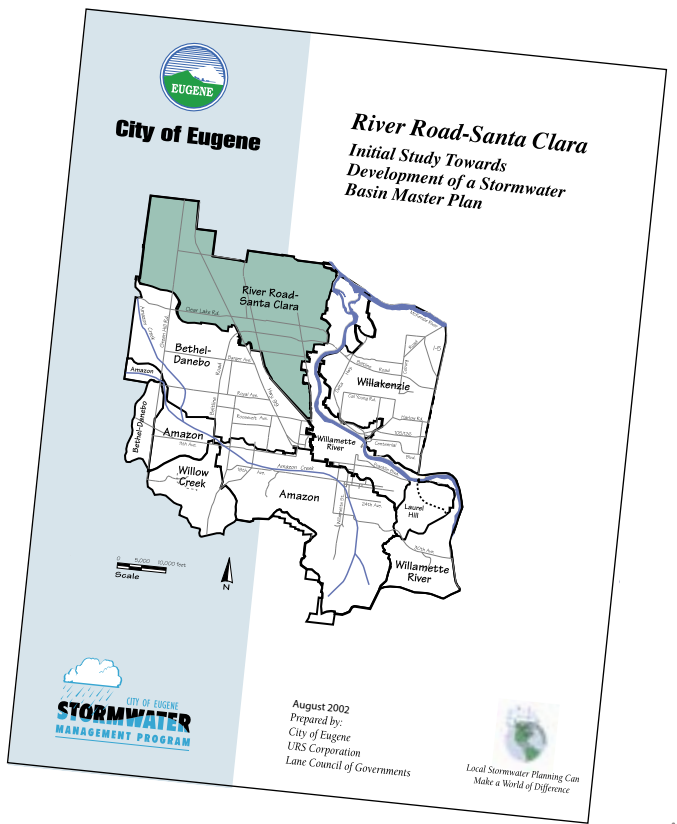
Eugene completed updated stormwater master plans for six of seven stormwater basins in August 2002. A draft plan was developed in 2002, but not completed, for the River Road – Santa Clara basin, pending a formal partnership between Eugene and Lane County to address mutual concerns in the River Road/Santa Clara inter-jurisdictional area.

In April 2004, Eugene and Lane County formed a co-operative agreement so that both agencies could work together to comply with federal stormwater regulations. This included partnering together on completing the draft River Road - Santa Clara Stormwater Basin Master Plan. Staff and consultant work on this project is now underway. The 2002 draft River Road – Santa Clara document, called the "Initial Study Towards Development of a Stormwater Basin Master Plan" is available on the city and county web sites: at the city address below and at the Lane County Public Works website (http://www.lanecounty.org/PW/default.htm>information>stormwater) . Copies are available for viewing at the Eugene Water Pollution Control Facility (410 River Avenue), at Lane County Public Works (3040 North Delta Highway), at the Eugene Public Library (100 W. 10th Avenue), and at both the River Road and Santa Clara Community Organization meeting locations.

Input from the River Road and Santa Clara community is being requested on: stormwater-related problems in River Road – Santa Clara; photos taken during significant storm events; comments on the 2002 draft document; and comments on updates to the draft document which will be presented at the community organization meetings and on the web site, as the staff work progresses.

The final basin master plan will include: information about the characteristics of the basin; stormwater capital improvement projects for River Road – Santa Clara; and proposed stormwater development standards. Emerging issues related to the federal Safe Drinking Water Act and the continued operation of drywells in the River Road - Santa Clara area will be also addressed in the final plan. Community input will improve the quality of the plan, and will ensure that the plan addresses stormwater management in a manner which takes into account the unique characteristics of the River Road – Santa Clara basin.

To view the 2002 draft basin plans, and updates as the staff work progresses, look on the city's internet web site at: http://www.eugene-or.gov/portal/server.pt (follow links to Public Works, PW Engineering, Basin Master Plans).



Flooding – it can't happen here, can it?

We're all aware of the devastation that flooding from hurricanes Katrina and Rita has caused along the Gulf Coast. You may have found yourself saying, "I'm glad I don't live there!" True, hurricanes aren't a big threat to our area, but do you know that parts of our area may be susceptible to flooding?

The Willamette River, Amazon Creek, and other smaller drainage ways have been identified by the Federal Emergency Management Agency (FEMA) as being within a Special Flood Hazard Area (SFHA). SFHA's are susceptible to flooding events which could potentially pose threats to life and safety and cause significant property damage. Our area has close to 20,000 acres of floodplain and nearly 10,000 individual parcels that are partially or entirely located within the floodplain. Storm events, snow melt from higher elevations, and high ground water are all factors that can affect the chance of a flood event. Ongoing development within the area may displace natural areas that have historically functioned as flood storage. Flooding can also occur in areas other than those designated as an SFHA.

This historical photo shows the Willamette River making its way through Springfield

Flood Insurance Provides Financial Protection

One of the most important things that you can do before a flood for the financial protection of your home and family is to purchase a flood insurance policy. Standard property insurance typically does not cover flood damage. The City of Eugene participates in the National Flood Insurance Program (NFIP) that makes federally backed flood insurance available for all structures, whether they are located within the floodplain or not. In fact, more than 25 percent of NFIP claims are filed by properties located outside the SFHA. The NFIP imposes a 30-day waiting period following the purchase of flood insurance. Flood insurance should be purchased before the onset of the rainy season to ensure coverage during the flooding season.

Membership within the NFIP — and the availability of flood insurance to Eugene residents — requires the City to manage its floodplain in ways that meet or exceed standards set by FEMA. Because of the City's floodplain management practices, residents within the floodplain receive a 15% discount on flood insurance premiums. Those outside the floodplain receive a 5% discount.

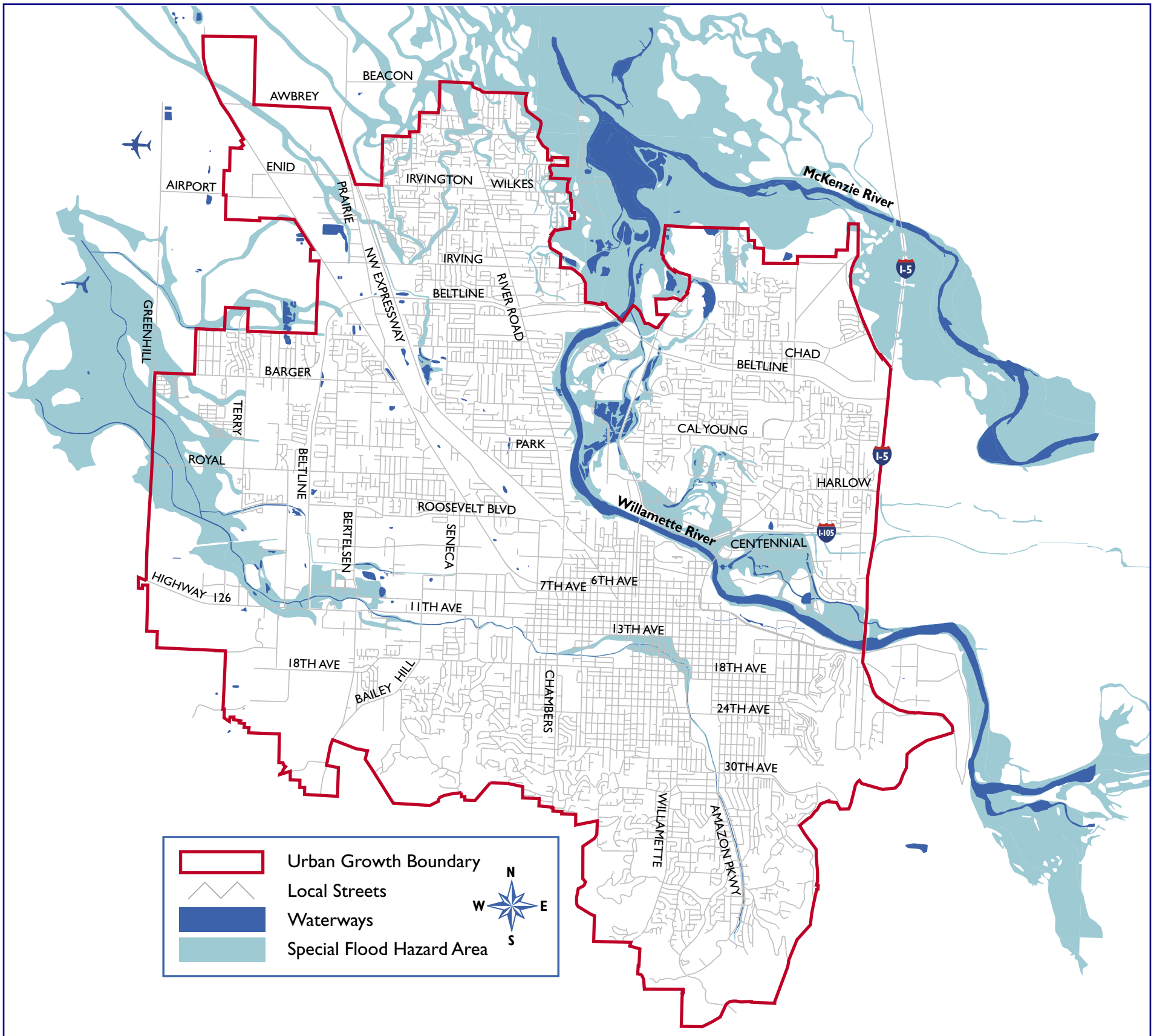
The NFIP offers two types of coverage: structural and contents. Structural coverage includes walls, floors, insulation, furnace and other items permanently attached to the structure. Contents coverage may be purchased separately to cover the contents of an insurable building.

Federal law requires that structures within the SFHA be covered by flood insurance if financing for the structure is obtained from a federally regulated or insured source — a requirement that affects nearly all mortgages financed through commercial lending institutions. This mandatory requirement stipulates that structural coverage be purchased equal to the amount of the loan, or other financial assistance, or for the maximum amount available, which is currently $250,000 for a single family residence. While the mandatory flood insurance purchase requirement has been in effect for many years, not all lending institutions have always required flood insurance. Today, however, most institutions are now requiring the flood insurance purchase, and some are reviewing all mortgage loans to determine whether flood insurance is required and should have been required in the past. When refinancing a loan, nearly all lending institutions will enforce the flood insurance requirement. It is the lender's responsibility to check the Flood Insurance Rate Map (FIRM) to determine whether a structure is within the SFHA.

The Willamette River, Amazon Creek, and other smaller drainage ways have been identified by the Federal Emergency Management Agency (FEMA) as being within a Special Flood Hazard Area (SFHA).

Visit our website at WWW.EUGENE-OR-GOV for more flood protection information.
Use the *City Quick Links* to go to the *Stormwater* page containing flood information.

Eugene Area Special Flood Hazard Zones



This map shows the extent of flooding that could occur in the event of a 100-year flood. The 1996 floods represented a 25-year flood event. The shaded area (the Special Flood Hazard Area) shows the land within the 100-year floodplain boundary that has a 1 percent or greater chance of flooding in any year.

More Flood Hazard Information

Other protection and preparedness tips

Maintaining the flow capacity in streams requires cooperation and assistance to prevent flooding and bank erosion. The following information is provided to help understand how flooding occurs and how to protect from flood damage.

Recognize the natural and beneficial functions of floodplains to help reduce flooding: Since floodplains are a natural component of our environment, it helps to understand how they work and how to protect their natural functions to reduce flood damage and protect resources. When flooding spreads out across the floodplain, its energy is dissipated which results in lower flood flows downstream, reduced erosion of the stream bank and channel, deposition of sediments higher in the watershed and improved groundwater recharge. Floodplains are scenic, valued wildlife habitat, and suitable for farming. Poorly planned development in floodplains can lead to stream bank erosion, loss of valuable property, increased risk of flooding to downstream properties and degradation of water quality.

Do not dump or throw anything into ditches or streams: A plugged channel cannot carry water. When it rains, the excess water must go somewhere. Trash and vegetation dumped into a stream degrades water quality of both the stream itself and its receiving waters, and every piece of trash contributes to flooding.

Remove debris, trash, loose branches and vegetation: Keep banks clear of brush and debris to help maintain an unobstructed flow of water in stream channels. Do not, however, remove vegetation that is actively growing on a stream bank. Streamside vegetation is tightly regulated by local, state and federal regulations.

Obtain required permits for development within the floodplain: All new construction in the floodplain must be constructed to minimize damage during flood events. Requirements may include anchoring against movement by floodwaters, construction resistant to flood forces, construction with flood-resistant materials and flood-proofing or elevation so that the first floor of living space (including all mechanical and services) is at least 1 foot above the Base Flood Elevation. These standards apply to new structures and to substantial improvements of existing structures. Additionally, most other types of development within the floodplain also require a floodplain development permit. These activities include grading, cut and fill, installation of riprap and other bank stabilization techniques.

Reduce risk of damage to homes: Techniques include elevation of the home, relocating the home to higher ground, constructing floodwalls or berms, and flood-proofing and protecting utilities. During times of flooding, homes that have not been retrofitted can be protected during emergencies by the installation of sandbags.

Move valuables: Moving valuables to the second floor or attic can help minimize damage. Secure outdoor furniture and other loose items outdoors so they won't be swept away with flood waters.

Be Prepared: Create a map of the primary and alternate escape routes for your area. If an evacuation is called for, you will already have a plan. Keep an emergency kit which includes non-perishable food, water, extra clothes, sturdy shoes, a flashlight, a small transistor radio, and extra batteries. Keep some cash available as ATMs may not be available if there are power outages. Have copies of insurance policies, deeds, and other property records in your emergency kit. And, be sure to purchase flood insurance!

Floodplain information services

Do you know if your property is located within a Special Flood Hazard Area? Ask us! City of Eugene staff provides flood map determination services to owners, lenders, and insurance agents. Services include determining whether a property is within the floodplain or floodway, the Flood Insurance Rate Map zone for the property, and the Base Flood Elevation for the property (if available). Elevation Certificates that have been obtained during a building permit process are also available. Contact Public Works staff at the Permit and Information Center. Counter hours are Monday through Friday, 1:00 pm to 5:00 pm, or call us at (541) 682-8400. The Permit and Information Center is located in the Atrium Building at 99 West 10th Avenue in Eugene.

If a flood event occurs…

Do not Walk through Flowing Water. Currents can be deceptive. Six inches of moving water can knock you off your feet. Drowning is the number one cause of flood-related deaths.

Do Not Drive through a Flooded Area. More people drown in vehicles than anywhere else! If you come across a flooded road, turn around and go the other way. As little as 12 inches of moving water can move vehicles! Flood barriers are established to keep you and your car safe. Use travel routes recommended by local authorities.

Stay Away from Power Lines and Electrical Wires. The second leading cause of flood-related deaths is electrocution. Electrical currents travel through water. For your safety, do not attempt to move a downed wire. Report any downed power lines to the power company.

Turn off all Utilities at the Main Power Switch. Close the main gas valve if evacuation becomes necessary. Do not touch power switches if standing in water! Some appliances, such as television sets, keep electrical charges even after they are unplugged. Remember to unplug wet appliances or motors, and do not use them unless they have been taken apart, cleaned and dried.

Look Out for Animals. Small animals are often displaced from their homes during a flood and may seek shelter in yours. Use a pole or stick to poke and turn things over and scare away small animals.

Look Before You Step. After a flood, the ground floor may be covered with dangerous debris. Look before you step. Floors and stairs that have been covered with mud can be slippery.

Be Alert For Gas Leaks. Pipes and housing foundations can be disturbed during a flood. Use a flashlight to inspect for damage. Don't smoke or use candles, lanterns, or open flames unless you know the gas has been turned off and the area is ventilated.

After the 1996 flood, Oregon officials estimated at least $400 million in uninsured property damage alone, as only an estimated 20 percent of homes and businesses destroyed or damaged there were covered by insurance.

- National Oceanic and Atmospheric Administration (NOAA)

Visit our website at WWW.EUGENE-OR-GOV for more flood protection information.
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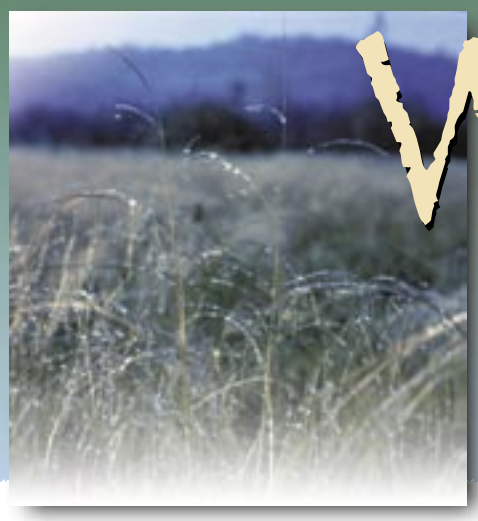


Wetlands & Waterways

Innovative plant materials program helps restore wetlands

Local wetland ecosystems provide a number of benefits to the community, including preserving water quality, reducing flooding, and providing wildlife habitat. Throughout the West Eugene Wetlands, an innovative plant materials program is improving the restoration and maintenance success of this valuable natural resource area.

While the West Eugene Wetlands Partnership has been planning and completing wetlands restoration projects over the last decade, it has continued to improve the effectiveness of its native plant procurement program. The main goals of the plant procurement program are to: (a) ensure the availability of native plant materials for restoration within the West Eugene Wetlands, and (b) implement the most ecological and cost-effective propagation and establishment methods for each species.

In spring of 2004, the partnership staff began a systematic review of 10 years worth of restoration data on seeding success to determine which propagation strategies would be most successful for all the species we use in wetland restoration projects.

From this review, a strategy was developed for each species within the four main habitats of the area (wet prairie, vernal pool wetland, emergent wetland, upland prairie). Propagation methods include sowing seeds, planting bulbs, planting bare-root stock, planting cuttings, or planting plugs.

The main propagation technique for most species is still via seeds. Seeds of most of our native wetland species are not available commercially, particularly seed of local origin that will allow us to maintain genetic integrity of local wetland plant communities. Seed is obtained in two main ways: (a) by purchase from a private or public grower, or (b) hand-collected from sites within 20 miles of west Eugene.

In the future, we'll use private growers more to increase the supply of up to 45 species used in our restoration program. This will both increase the amount of seed available for restoration projects and substantially reduce the cost of the seeds. We currently have seed growout programs with five different growers, and bulb, plug, and bare-root stock growout with two additional growers.

After just two years, these new changes have helped increase the diversity of native species successfully established on new restoration sites. This is great for improving wildlife habitat and for conserving our native diversity for future generations. As we learn more about each species and the success of each strategy, the strategies will be updated.

For more information on the West Eugene Wetlands plant materials program, contact Eric Wold, Wetlands Program Supervisor, at 682-4888.

Contractors plant plugs in a wetland site. Some species establish more successfully when planted as plugs rather than sown as seeds.

A large bed of streamside lupine is being grown at a nursery near Corvallis. Increasing seed stocks through nursery bed grow-out is much more time- and cost-effective than hand collecting.

New telescope at Checkermallow Access enhances wildlife viewing

The West Eugene Wetlands provide outstanding habitat for wildlife, including many large birds (such as ducks, geese, herons, and raptors), turtles, dragonflies, and butterflies. A telescope donated to the City of Eugene by the Lane County Audubon Society makes it easier than ever to view and appreciate the wildlife and wetlands. The new telescope was installed along the Fern Ridge Path at Checkermallow Access, an interpretive overlook at the north end of Meadowlark Prairie, along Amazon Creek. The telescope is similar to those in use at many National Parks, but does not require any coins to operate it. The next time you're in west Eugene, stop by and discover what you can see with the new telescope.

A family enjoys using the new telescope

Hi! I'm Lily, the mascot of the City of Eugene's Storm-water Education Program.

Do you love a mystery? Find out how paleontologists made a startling discovery about a species that lived in Oregon millions of years ago.

Ancient mystery may hold clues to the future

It was ten feet long and weighed 500 pounds. It had huge fangs and prowled the rivers and oceans of the Pacific Northwest until it became extinct over 5 million years ago. Who was this monster? This giant creature was the **saber toothed salmon**! Discovered in fossils sites in Oregon, Idaho, and California the saber toothed salmon (*Oncorhyncus rastrosus*) was a distant cousin of the salmon who swim in our rivers today.

Scientists first made this exciting discovery in 1917, when they unearthed teeth and skull fragments of a previously unknown fish. In 1950 and 1964, more complete fossil specimens of the fish were collected in northeastern Oregon. The life of the saber toothed salmon still remains somewhat of a mystery. Studying the fossil remains has provided a few clues; scientists think the salmon migrated from freshwater to the sea and fed on small ocean organisms. The saber toothed salmon also lived at the same time as *Oncorhyncus*, the ancestor of our modern day salmon.

Despite all of the study done on this unique salmon, one thing remains a mystery. Why did this salmon become extinct? Like the giant mastodons and saber toothed tigers, the saber toothed salmon did not survive the massive extinctions that occurred in the Cenozoic era. Was it a cataclysmic climate change? Was it habitat destruction or competition for food?

Studying lessons of the past can help predict what could happen in the future. Today, salmon are at risk. Destruction of habitat, polluted rivers, overfishing, and hydroelectric dams have all been factors in the decline of salmon populations. Global warming, acid rain and increases in human populations will continue to put pressure on a threatened species. Will modern day salmon adapt and survive or will they become an extinct relic like their ancient ancestor?

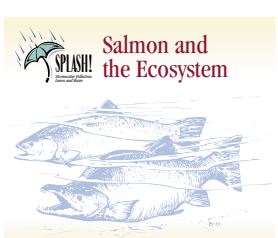
Artist Ray Troll's drawing of the giant saber toothed salmon that roamed the waters of the Northwest millions of years ago. Poster available at www.trollart.com.

Copyright Ray Troll 2003

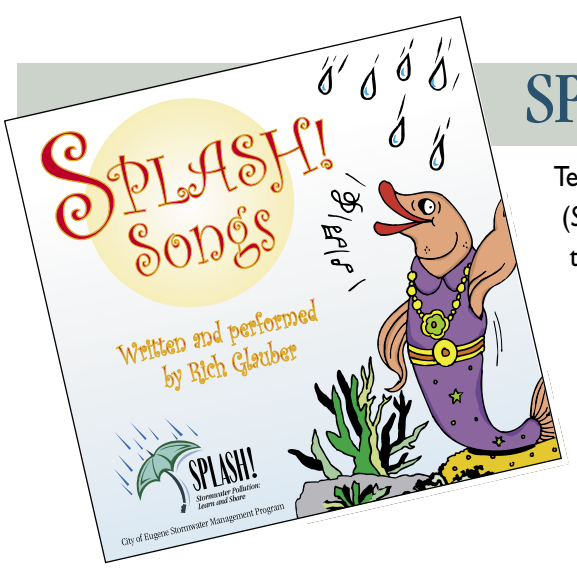
Fossils of this fascinating creature can still be found in the Owyhee-Bruneau Canyonlands in northeastern Oregon.

Illustration used with permission from the University of Oregon Museum of Natural and Cultural History

SPLASH! Stormwater Pollution: Learn and Share



Teachers: For more information about *SPLASH! Stormwater Learn and Share*, and *Salmon and the Ecosystem*, call 682-8482.



SPLASH! Songs a hit in local schools

Teachers who attended a recent workshop got the latest update of the SPLASH! (*Stormwater Pollution Learn and Share*) curriculum and a new CD produced as a learning tool to help kids learn more about water quality issues. ***SPLASH! Songs*** is a collection of songs about salmon, watersheds, rivers and the problems of water pollution. This upbeat and inspiring music, written and performed by local musician Rich Glauber, will have everyone singing and dancing. Teachers from Eugene's 4J and Bethel school districts can get a free copy of the CD to go along with the SPLASH! curriculum by calling 682-8482. The SPLASH! curriculum is produced by the City of Eugene's Stormwater Management Program to encourage environmental stewardship.